

FOURTH COOPERATION TREATY

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C.20231
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 18 July 2000 (18.07.00)	in its capacity as elected Office
International application No. PCT/EP99/08591	Applicant's or agent's file reference 8K22PC
International filing date (day/month/year) 09 November 1999 (09.11.99)	Priority date (day/month/year) 10 November 1998 (10.11.98)
Applicant	

1. The designated Office is hereby notified of its election made:

in the demand filed with the International Preliminary Examining Authority on:

06 June 2000 (06.06.00)

in a notice effecting later election filed with the International Bureau on:

2. The election was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

<p>The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No.: (41-22) 740.14.35</p>	<p>Authorized officer</p> <p>Zakaria EL KHODARY</p> <p>Telephone No.: (41-22) 338.83.38</p>
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From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

BORENİUS & CO OY AB
Kansakoulukuja 3
FI-00100 Helsinki
FINLANDE

PCT

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing (day/month/year)	20.09.2000
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Applicant's or agent's file reference 8K22PC	IMPORTANT NOTIFICATION	
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International application No. PCT/EP99/08591	International filing date (day/month/year) 09/11/1999	Priority date (day/month/year) 10/11/1998
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Applicant TELEFONAKTIEBOLAGET LM ERICSSON (publ) et al.
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1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/	Authorized officer
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European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465

Authorized officer

Finnie, A



PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 8K22PC	FOR FURTHER ACTION		See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/EP99/08591	International filing date (day/month/year) 09/11/1999	Priority date (day/month/year) 10/11/1998	
International Patent Classification (IPC) or national classification and IPC H04Q3/00			
<p>Applicant TELEFONAKTIEBOLAGET LM ERICSSON (publ) et al.</p>			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> I <input checked="" type="checkbox"/> Basis of the report II <input type="checkbox"/> Priority III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input checked="" type="checkbox"/> Certain defects in the international application VIII <input type="checkbox"/> Certain observations on the international application 			

Date of submission of the demand 06/06/2000	Date of completion of this report 20.09.2000
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Kreppel, J. Telephone No. +49 89 2399 8246



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP99/08591

I. Basis of the report

1. This report has been drawn on the basis of (substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.):

Description, pages:

1-10 as originally filed

Claims, No.:

1-9 as originally filed

Drawings, sheets:

1/2-2/2 as originally filed

2. The amendments have resulted in the cancellation of:

- the description, pages:
- the claims, Nos.:
- the drawings, sheets:

3. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/EP99/08591

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims 1-9
	No: Claims
Inventive step (IS)	Yes: Claims 1-9
	No: Claims
Industrial applicability (IA)	Yes: Claims 1-9
	No: Claims

2. Citations and explanations

see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

With respect to item V:

1 Prior art

The invention relates to a method of transferring signalling messages between an Internet Service Provider and an exchange of a telecommunications network according to claim 1 and a corresponding apparatus according to independent claim 9.

Providing telephone connections between circuit switched networks and data networks is known in the art. Signalling gateways are used to map message flows and protocol stacks between the different domains.

The European Telecommunications Standards Institute (ETSI) has recently established a project under the acronym TIPHON (Telecommunications and Internet Protocol Harmonization Over Network) to define voiceband communication between users connected to both circuit switched networks and IP based networks. Gateways are defined by TIPHON at the border between the networks mapping both signalling and voice channels.

Since access to the Internet is usually provided by different Service Providers (ISPs), a signalling gateway being under the control of a telecommunications Service Provider will be connected to different Internet Service Providers simultaneously. Signalling connections must therefore carefully be correlated to avoid accidental or fraudulent cross-ISP interference. This problem has not yet been addressed by the current TIPHON standards.

2 Object

It is therefore an object of the present invention to overcome the situation mentioned above and to provide a method and apparatus for transferring signalling messages between an ISP and an exchange avoiding cross-ISP interference of signalling connections.

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/EP99/08591

3 Solution

This is achieved via the following combination of features:

- messages are routed via a signalling gateway which provides conversion of messages between transmission protocols used within the telecommunication and the data network;
- for each message received from an ISP the right of that ISP to control a circuit switched communication channel identified in the message is confirmed.

The correlation of ISPs is done according to different embodiments of the invention by identifying the IP address of an ISP or by allocating each of the ISPs an unique Point Code of the telecommunications signalling network.

4 Conclusions

The inventive concept is neither anticipated nor rendered obvious by the prior art at hand. The subject-matter of independent **claims 1 and 9** therefore meets the requirements of Article 33 (2) and (3) PCT regarding novelty and inventive step. **Claims 2 to 8** are dependent on claim 1 and therefore also novel and inventive.

With respect to item VII:

The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

The demand must be filed directly with the competent International Preliminary Examining Authority or, if two or more Authorities are competent, with the one chosen by the applicant. The full name or two-letter code of that Authority may be indicated by the applicant on the line below:
IPEA/ EP

PCT

CHAPTER II

DEMAND

under Article 31 of the Patent Cooperation Treaty:
The undersigned requests that the international application specified below be the subject of international preliminary examination according to the Patent Cooperation Treaty and hereby elects all eligible States (except where otherwise indicated).

For International Preliminary Examining Authority use only	
Identification of IPEA	Date of receipt of DEMAND
Box No. I IDENTIFICATION OF THE INTERNATIONAL APPLICATION	
International application No. PCT/EP99/08591	International filing date (day/month/year) 09 Nov 1999 (09.11.99)
(Earliest) Priority date (day/month/year) 10 Nov 1998 (10.11.98)	
Title of invention SECURITY IN TELECOMMUNICATIONS NETWORK GATEWAYS	
Box No. II APPLICANT(S)	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) TELEFONAKTIEBOLAGET L M ERICSSON (publ) S-126-25 Stockholm Sweden	Telephone No.: Facsimile No.: Teleprinter No.:
State (that is, country) of nationality: SE	State (that is, country) of residence: SE
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) GRAF, Leslie 3 Hender Court, Ballwyn VIC 3103 Australia	
State (that is, country) of nationality: AU	State (that is, country) of residence: AU
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) RYTINA, Ian 28/25 Barkly Street, Carlton VIC 3053 Australia	
State (that is, country) of nationality: AU	State (that is, country) of residence: AU
<input checked="" type="checkbox"/> Further applicants are indicated on a continuation sheet.	

Continuation of Box No. II APPLICANT(S)

If none of the following sub-boxes is used, this sheet should not be included in the demand.

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

HOLLIS, Mark
1 Daintree Avenue
Park Orchards
VIC
Australia

State *(that is, country)* of nationality:
AU

State *(that is, country)* of residence:
AU

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

State *(that is, country)* of nationality:

State *(that is, country)* of residence:

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

State *(that is, country)* of nationality:

State *(that is, country)* of residence:

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

State *(that is, country)* of nationality:

State *(that is, country)* of residence:

Further applicants are indicated on another continuation sheet.

Box No. III AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The following person is agent common representative

and has been appointed earlier and represents the applicant(s) also for international preliminary examination.

is hereby appointed and any earlier appointment of (an) agent(s)/common representative is hereby revoked.

is hereby appointed, specifically for the procedure before the International Preliminary Examining Authority, in addition to the agent(s)/common representative appointed earlier.

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

Telephone No.:

+358 9 686 6840

Facsimile No.:

+358 9 686 684 44

Teleprinter No.:

Borenius & Co Oy Ab
Kansakoulukuja 3
FIN-00100 HELSINKI
Finland

Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

Box No. IV BASIS FOR INTERNATIONAL PRELIMINARY EXAMINATION

Statement concerning amendments:*

1. The applicant wishes the international preliminary examination to start on the basis of:

the international application as originally filed

the description as originally filed

as amended under Article 34

the claims as originally filed

as amended under Article 19 (together with any accompanying statement)

as amended under Article 34

the drawings as originally filed

as amended under Article 34

2. The applicant wishes any amendment to the claims under Article 19 to be considered as reversed.

3. The applicant wishes the start of the international preliminary examination to be postponed until the expiration of 20 months from the priority date unless the International Preliminary Examining Authority receives a copy of any amendments made under Article 19 or a notice from the applicant that he does not wish to make such amendments (Rule 69.1(d)). *(This check-box may be marked only where the time limit under Article 19 has not yet expired.)*

* Where no check-box is marked, international preliminary examination will start on the basis of the international application as originally filed or, where a copy of amendments to the claims under Article 19 and/or amendments of the international application under Article 34 are received by the International Preliminary Examining Authority before it has begun to draw up a written opinion or the international preliminary examination report, as so amended.

Language for the purposes of international preliminary examination: English

which is the language in which the international application was filed.

which is the language of a translation furnished for the purposes of international search.

which is the language of publication of the international application.

which is the language of the translation (to be) furnished for the purposes of international preliminary examination.

Box No. V ELECTION OF STATES

The applicant hereby elects all eligible States (that is, all States which have been designated and which are bound by Chapter II of the PCT)

excluding the following States which the applicant wishes not to elect:

Box No. VI CHECK LIST

The demand is accompanied by the following elements, in the language referred to in Box No. IV, for the purposes of international preliminary examination:

1. translation of international application	:	sheets
2. amendments under Article 34	:	sheets
3. copy (or, where required, translation) of amendments under Article 19	:	sheets
4. copy (or, where required, translation) of statement under Article 19	:	sheets
5. letter	:	sheets
6. other (specify)	:	sheets

For International Preliminary Examining Authority use only

received	not received
<input type="checkbox"/>	<input type="checkbox"/>

The demand is also accompanied by the item(s) marked below:

1. <input checked="" type="checkbox"/> fee calculation sheet	4. <input type="checkbox"/> statement explaining lack of signature
2. <input type="checkbox"/> separate signed power of attorney	5. <input type="checkbox"/> nucleotide and or amino acid sequence listing in computer readable form
3. <input type="checkbox"/> copy of general power of attorney; reference number, if any:	6. <input type="checkbox"/> other (specify):

Box No. VII SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the demand).

Borenius & Co Oy Ab


Silvio Hjelt
European Patent Attorney (0081740)

For International Preliminary Examining Authority use only

1. Date of actual receipt of DEMAND:		
2. Adjusted date of receipt of demand due to CORRECTIONS under Rule 60.1(b):		
3. <input type="checkbox"/> The date of receipt of the demand is AFTER the expiration of 19 months from the priority date and item 4 or 5, below, does not apply.	<input type="checkbox"/> The applicant has been informed accordingly.	
4. <input type="checkbox"/> The date of receipt of the demand is WITHIN the period of 19 months from the priority date as extended by virtue of Rule 80.5.		
5. <input type="checkbox"/> Although the date of receipt of the demand is after the expiration of 19 months from the priority date, the delay in arrival is EXCUSED pursuant to Rule 82.		

For International Bureau use only

Demand received from IPEA on:

PATENT COOPERATION TREATY

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RECD 22 SEP 2000

Y-1PO

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15

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 8K22PC		FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/EP99/08591	International filing date (day/month/year) 09/11/1999		Priority date (day/month/year) 10/11/1998
International Patent Classification (IPC) or national classification and IPC H04Q3/00			
Applicant TELEFONAKTIEBOLAGET LM ERICSSON (publ) et al.			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> I <input checked="" type="checkbox"/> Basis of the report II <input type="checkbox"/> Priority III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input checked="" type="checkbox"/> Certain defects in the international application VIII <input type="checkbox"/> Certain observations on the international application 			

Date of submission of the demand	Date of completion of this report
06/06/2000	20.09.2000
Name and mailing address of the international preliminary examining authority:	Authorized officer
 European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	 Kreppel, J Telephone No. +49 89 2399 8246

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/EP99/08591

I. Basis of the report

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

Description, pages:

1-10 as originally filed

Claims, No.:

1-9 as originally filed

Drawings, sheets:

1/2-2/2 as originally filed

2. The amendments have resulted in the cancellation of:

the description, pages:
 the claims, Nos.:
 the drawings, sheets:

3. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/EP99/08591

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims 1-9
	No: Claims
Inventive step (IS)	Yes: Claims 1-9
	No: Claims
Industrial applicability (IA)	Yes: Claims 1-9
	No: Claims

2. Citations and explanations

see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

With respect to item V:

1 Prior art

The invention relates to a method of transferring signalling messages between an Internet Service Provider and an exchange of a telecommunications network according to claim 1 and a corresponding apparatus according to independent claim 9.

Providing telephone connections between circuit switched networks and data networks is known in the art. Signalling gateways are used to map message flows and protocol stacks between the different domains.

The European Telecommunications Standards Institute (ETSI) has recently established a project under the acronym TIPHON (Telecommunications and Internet Protocol Harmonization Over Network) to define voiceband communication between users connected to both circuit switched networks and IP based networks. Gateways are defined by TIPHON at the border between the networks mapping both signalling and voice channels.

Since access to the Internet is usually provided by different Service Providers (ISPs), a signalling gateway being under the control of a telecommunications Service Provider will be connected to different Internet Service Providers simultaneously. Signalling connections must therefore carefully be correlated to avoid accidental or fraudulent cross-ISP interference. This problem has not yet been addressed by the current TIPHON standards.

2 Object

It is therefore an object of the present invention to overcome the situation mentioned above and to provide a method and apparatus for transferring signalling messages between an ISP and an exchange avoiding cross-ISP interference of signalling connections.

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/EP99/08591

3 Solution

This is achieved via the following combination of features:

- messages are routed via a signalling gateway which provides conversion of messages between transmission protocols used within the telecommunication and the data network;
- for each message received from an ISP the right of that ISP to control a circuit switched communication channel identified in the message is confirmed.

The correlation of ISPs is done according to different embodiments of the invention by identifying the IP address of an ISP or by allocating each of the ISPs an unique Point Code of the telecommunications signalling network.

4 Conclusions

The inventive concept is neither anticipated nor rendered obvious by the prior art at hand. The subject-matter of independent **claims 1 and 9** therefore meets the requirements of Article 33 (2) and (3) PCT regarding novelty and inventive step. **Claims 2 to 8** are dependent on claim 1 and therefore also novel and inventive.

With respect to item VII:

The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 8K22PC	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/EP 99/ 08591	International filing date (day/month/year) 09/11/1999	(Earliest) Priority Date (day/month/year) 10/11/1998
Applicant TELEFONAKTIEBOLAGET LM ERICSSON (publ) et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the International application in the language in which it was filed, unless otherwise indicated under this item.

the international search was carried out on the basis of a translation of the International application furnished to this Authority (Rule 23.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the International application, the International search was carried out on the basis of the sequence listing :

contained in the International application in written form.

filed together with the International application in computer readable form.

furnished subsequently to this Authority in written form.

furnished subsequently to this Authority in computer readable form.

the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the International application as filed has been furnished.

the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. Certain claims were found unsearchable (See Box I).

3. Unity of invention is lacking (see Box II).

4. With regard to the title,

the text is approved as submitted by the applicant.

the text has been established by this Authority to read as follows:

SECURITY IN TELECOMMUNICATIONS NETWORK GATEWAYS

5. With regard to the abstract,

the text is approved as submitted by the applicant.

the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this International search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.

as suggested by the applicant.

because the applicant failed to suggest a figure.

because this figure better characterizes the invention.

1

None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 99/08591

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04Q3/00 H04L12/66

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04Q H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 96 38018 A (TELEFONAKTIEBOLAGET LM ERICSSON) 28 November 1996 (1996-11-28) abstract page 1, line 24-36 page 5, line 11-35 page 7, line 19 -page 12, line 17 claims 1-7,11; figures 1,2	1-5,9
A	---	6-8
X	WO 98 17048 A (BRITISH TELECOMMUNICATIONS PLC) 23 April 1998 (1998-04-23) abstract page 4, line 1 -page 5, line 16 claims 1,2,10-12; figures 2-5,8 ---	1,2,4,9

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the International filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the International filing date but later than the priority date claimed

"T" later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed Invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed Invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the International search

Date of mailing of the International search report

30 March 2000

10/04/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Gijsels, W

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 99/08591

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 98 28885 A (TELEFONAKTIEBOLAGET LM ERICSSON) 2 July 1998 (1998-07-02) abstract page 2, line 17-26 claims 1,7,8; figures 1,2 ----	1-9
A	EP 0 851 653 A (LUCENT TECHNOLOGIES INC) 1 July 1998 (1998-07-01) column 4, line 31 -column 5, line 21 claims 6-8; figures 1-7 ----	1,4,6,8, 9
A	EP 0 203 614 A (FUJITSU LTD) 3 December 1986 (1986-12-03) page 6, line 32 -page 7, line 8 page 8, line 24-36 page 10, line 7-17 figures 1,4-8,10A-12B ----	1,7,9
P,X	WO 99 34613 A (BELL CANADA) 8 July 1999 (1999-07-08) abstract page 8, line 11 -page 14, line 19 claims 1,4-6,13-15; figures 1,2,5 ----	1-4,9
P,X	EP 0 909 064 A (KOKUSAI DENSHIN DENWA CO LTD) 14 April 1999 (1999-04-14) abstract page 3, line 31 -page 4, line 52 figures 1A,1B,3 ----	1,2,4,9
E	WO 99 67928 A (TELEFONAKTIEBOLAGET LM ERICSSON) 29 December 1999 (1999-12-29) the whole document ----	1-4,6,7, 9
E	EP 0 966 145 A (NORTEL NETWORKS CORP) 22 December 1999 (1999-12-22) abstract claims 1-7; figures 1,3,5,6,22-25 ----	1,3,4,9

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 99/08591

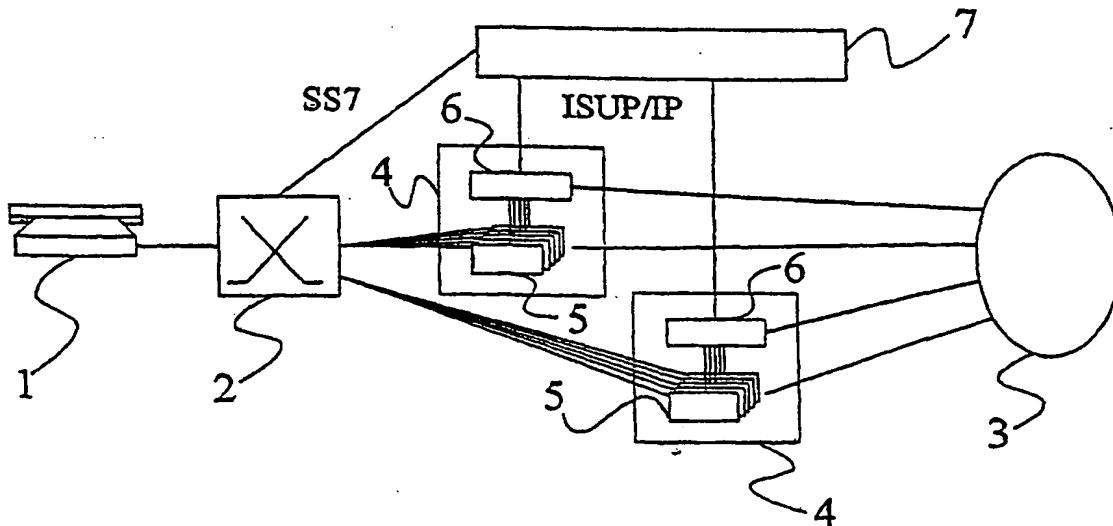
Patent document cited in search report		Publication date		Patent family member(s)		Publication date
WO 9638018	A	28-11-1996		FI 961690 A AU 708519 B AU 5916696 A BR 9609190 A CA 2221183 A CN 1185268 A EP 0829181 A JP 11505973 T NO 975343 A		25-11-1996 05-08-1999 11-12-1996 11-05-1999 28-11-1996 17-06-1998 18-03-1998 25-05-1999 21-01-1998
WO 9817048	A	23-04-1998		AU 4630597 A EP 0932972 A		11-05-1998 04-08-1999
WO 9828885	A	02-07-1998		AU 5352098 A EP 0958684 A NO 992963 A SE 9604784 A		17-07-1998 24-11-1999 20-08-1999 21-06-1998
EP 0851653	A	01-07-1998		CA 2221218 A JP 10210182 A		23-06-1998 07-08-1998
EP 0203614	A	03-12-1986		JP 1672772 C JP 3032946 B JP 61276465 A CA 1287152 A CN 1006436 B HK 46792 A KR 9001156 B SG 45592 G US 5182550 A		12-06-1992 15-05-1991 06-12-1986 30-07-1991 10-01-1990 03-07-1992 27-02-1990 12-06-1992 26-01-1993
WO 9934613	A	08-07-1999		AU 1865099 A		19-07-1999
EP 0909064	A	14-04-1999		JP 11068851 A		09-03-1999
WO 9967928	A	29-12-1999		FI 981354 A		12-12-1999
EP 0966145	A	22-12-1999		NONE		



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(30) Priority Data: 982443 10 November 1998 (10.11.98) FI			
(71) Applicant (for all designated States except US): TELEFON- AKTIEBOLAGET LM ERICSSON (publ) [SE/SE]; S-126 25 Stockholm (SE).			
(72) Inventors; and			
(75) Inventors/Applicants (for US only): GRAF, Leslie [AU/AU]; 3 Hender Court, Ballwyn, VIC 3103 (AU); RYTINA, Ian [AU/AU]; 28/25 Barkly Street, Carlton, VIC (AU). HOL- LIS, Mark [AU/AU]; 1 Daintree Avenue, Park Orchards, VIC (AU).			
(74) Agent: BORENIUS & CO OY AB; Kansakoulukuja 3, FIN-00100 Helsinki (FI).			

(54) Title: SECURITY IN TELECOMMUNICATIONS NETWORK GATEWAYS



(57) Abstract

A method of transferring signalling messages between an Internet Service Provider (ISP) (4) and an exchange (2) of a telecommunications network for the purpose of allocating and controlling circuit switched communication channels between the exchange (2) and the ISP (4). The method comprising routing the signalling messages via an SS7/IP gateway which provides for conversion of messages between an SS7 protocol used in the telecommunications network and an IP based protocol used in the network which connects the SS7/IP gateway 7 to the ISP 4. For each message received at the SS7/IP gateway 7 from the ISP 4, the SS7/IP gateway 7 confirms the right of that ISP 4 to control a circuit switched communication channel identified in the message.

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INTERNATIONAL SEARCH REPORT

Inten. Appl. No.
PCT/EP 99/08591A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04Q3/00 H04L12/66

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04Q H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 96 38018 A (TELEFONAKTIEBOLAGET LM ERICSSON) 28 November 1996 (1996-11-28) abstract page 1, line 24-36 page 5, line 11-35 page 7, line 19 -page 12, line 17 claims 1-7,11; figures 1,2	1-5,9
A		6-8
X	WO 98 17048 A (BRITISH TELECOMMUNICATIONS PLC) 23 April 1998 (1998-04-23) abstract page 4, line 1 -page 5, line 16 claims 1,2,10-12; figures 2-5,8	1,2,4,9
	—/—	

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Date of the actual completion of the International search

30 March 2000

Date of mailing of the International search report

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Name and mailing address of the ISA

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INTERNATIONAL SEARCH REPORT

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Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 98 28885 A (TELEFONAKTIEBOLAGET LM ERICSSON) 2 July 1998 (1998-07-02) abstract page 2, line 17-26 claims 1,7,8; figures 1,2	1-9
A	EP 0 851 653 A (LUCENT TECHNOLOGIES INC) 1 July 1998 (1998-07-01) column 4, line 31 -column 5, line 21 claims 6-8; figures 1-7	1,4,6,8, 9
A	EP 0 203 614 A (FUJITSU LTD) 3 December 1986 (1986-12-03) page 6, line 32 -page 7, line 8 page 8, line 24-36 page 10, line 7-17 figures 1,4-8,10A-12B	1,7,9
P,X	WO 99 34613 A (BELL CANADA) 8 July 1999 (1999-07-08) abstract page 8, line 11 -page 14, line 19 claims 1,4-6,13-15; figures 1,2,5	1-4,9
P,X	EP 0 909 064 A (KOKUSAI DENSHIN DENWA CO LTD) 14 April 1999 (1999-04-14) abstract page 3, line 31 -page 4, line 52 figures 1A,1B,3	1,2,4,9
E	WO 99 67928 A (TELEFONAKTIEBOLAGET LM ERICSSON) 29 December 1999 (1999-12-29) the whole document	1-4,6,7, 9
E	EP 0 966 145 A (NORTEL NETWORKS CORP) 22 December 1999 (1999-12-22) abstract claims 1-7; figures 1,3,5,6,22-25	1,3,4,9

INTERNATIONAL SEARCH REPORT

Information on patent family members

Internatinal Application No

PCT/EP 99/08591

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
WO 9638018	A 28-11-1996	FI 961690	A	25-11-1996
		AU 708519	B	05-08-1999
		AU 5916696	A	11-12-1996
		BR 9609190	A	11-05-1999
		CA 2221183	A	28-11-1996
		CN 1185268	A	17-06-1998
		EP 0829181	A	18-03-1998
		JP 11505973	T	25-05-1999
		NO 975343	A	21-01-1998
WO 9817048	A 23-04-1998	AU 4630597	A	11-05-1998
		EP 0932972	A	04-08-1999
WO 9828885	A 02-07-1998	AU 5352098	A	17-07-1998
		EP 0958684	A	24-11-1999
		NO 992963	A	20-08-1999
		SE 9604784	A	21-06-1998
EP 0851653	A 01-07-1998	CA 2221218	A	23-06-1998
		JP 10210182	A	07-08-1998
EP 0203614	A 03-12-1986	JP 1672772	C	12-06-1992
		JP 3032946	B	15-05-1991
		JP 61276465	A	06-12-1986
		CA 1287152	A	30-07-1991
		CN 1006436	B	10-01-1990
		HK 46792	A	03-07-1992
		KR 9001156	B	27-02-1990
		SG 45592	G	12-06-1992
		US 5182550	A	26-01-1993
WO 9934613	A 08-07-1999	AU 1865099	A	19-07-1999
EP 0909064	A 14-04-1999	JP 11068851	A	09-03-1999
WO 9967928	A 29-12-1999	FI 981354	A	12-12-1999
EP 0966145	A 22-12-1999	NONE		

PATENT COOPERATION TREATY

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INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 8K22PC	FOR FURTHER ACTION <small>see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.</small>	
International application No. PCT/EP 99/08591	International filing date (day/month/year) 09/11/1999	(Earliest) Priority Date (day/month/year) 10/11/1998
Applicant TELEFONAKTIEBOLAGET LM ERICSSON (publ) et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

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2. Certain claims were found unsearchable (See Box I).

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SECURITY IN TELECOMMUNICATIONS NETWORK GATEWAYS

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6. The figure of the drawings to be published with the abstract is Figure No.

as suggested by the applicant.

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because this figure better characterizes the invention.

1

None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 99/08591

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04Q3/00 H04L12/66

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Minimum documentation searched (classification system followed by classification symbols)
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A		6-8
X	WO 98 17048 A (BRITISH TELECOMMUNICATIONS PLC) 23 April 1998 (1998-04-23) abstract page 4, line 1 -page 5, line 16 claims 1,2,10-12; figures 2-5,8	1,2,4,9

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Patent family members are listed in annex.

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Date of the actual completion of the International search

30 March 2000

Date of mailing of the International search report

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INTERNATIONAL SEARCH REPORT

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 98 28885 A (TELEFONAKTIEBOLAGET LM ERICSSON) 2 July 1998 (1998-07-02) abstract page 2, line 17-26 claims 1,7,8; figures 1,2	1-9
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